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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,797	02/25/2005	Hiroshi Kannan	266746US26PCT	3008
22850	7590	06/09/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
GOLIGHTLY, ERIC WAYNE				
ART UNIT		PAPER NUMBER		
1792				
NOTIFICATION DATE		DELIVERY MODE		
06/09/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/525,797

**Applicant(s)**

KANNAN ET AL.

**Examiner**

Eric Golightly

**Art Unit**

1792

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 6, 7, 13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-12, 15 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-16 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Continuation Sheet
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Continuation of Attachment(s) 2). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :08 December 2005 and 25 July 2006.

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 1-16 are pending. Applicants' election without traverse of claims 1-5, 8-12, 15 and 16 in the reply filed on April 7, 2008, is acknowledged. Claims 6, 7, 13 and 14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 8, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by US 5,837,094 to Tsukazaki, et al. (hereinafter "Tsukazaki").

Regarding claims 1 and 8, Tsukazaki teaches a semiconductor manufacturing apparatus (abstract) and discloses: a deposition chamber (Fig. 1, ref. 4 and col. 5, lines 31 and 32), or processing vessel for accommodating a wafer, or substrate; a gas supply system (Fig. 1, ref. 8 and col. 5, line 41), which is fully capable of supplying a cleaning gas (col. 6, lines 51 and 52) or a reaction gas (col. 6, lines 18 and 19), or process gas; an exhaust pipe (Fig. 1, ref. 12 and col. 5, lines 48-50), or exhauster; a particle monitor (Fig. 1, ref. 15 and col. 5, lines 53-55), or operating state detector; and an end point

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detector (Fig. 1, ref. 13 and 31 and col. 5, lines 49-51 and 59-64), which is fully capable of detecting an end point of cleaning or processing based on a detection result from the operating state detector.

Regarding claims 15 and 16, Tsukazaki teaches a method of detecting an endpoint of a cleaning of a semiconductor manufacturing apparatus or of an etching, or substrate processing (abstract), and discloses: a particle monitoring process (col. 5, lines 53 and 54), or operating state detection process, for detecting an operating state of an exhauster (col. 5, lines 47- 55); supplying a cleaning gas to be used in cleaning (col. 6, lines 51 and 52) an interior of the processing vessel (col. 6, lines 52 and 53) of the substrate processing unit, or a process gas (col. 6, lines 18 and 19, and col. 7, line 65 to col. 8, line 9) into the processing vessel which accommodates a substrate to be processed (Fig. 1, ref. 1 and col. 5, lines 32 and 33); exhausting the interior of the processing vessel (col. 6, lines 62-64); and an end point detection process for detecting the end point of the cleaning or processing (col. 6, line 66 to col. 7, line 3) based on the detected operating state of the detector.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicants are advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2, 4, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukazaki (US 5,837,094) in view of JP 62210270 to Itaya, et al. (hereinafter "Itaya").

Regarding claims 2 and 9, Tsukazaki does not explicitly teach a vibration detector. Itaya teaches an exhaustor (abstract) equipped with a vibration detector (Fig. 1, ref. 17 and abstract). It would have been obvious to a person of ordinary skill in the art at the time of the invention to include a vibration detector with the exhaustor as per

the Itaya teaching in the semiconductor manufacturing apparatus as per the Tsukazaki teaching in order to inhibit an accident or breakage due to vibration.

Regarding claims 4 and 11, the end point detector of the Tsukazaki/Itaya apparatus is fully capable of detecting the end point based on the intensity of the vibration. It is noted that detecting vibration intensity is conventional in the art (see, for example, the abstract of US 6,012,334 to Ando, et al.).

8. Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukazaki (US 5,837,094) in view of Itaya (JP 62210270) and in further view of US 6,012,334 to Ando, et al. (hereinafter "Ando").

Tsukazaki and Itaya do not explicitly teach a sound wave detector. Ando teaches vibration wave detector (abstract) including a sound wave detector (Fig. 3, no ref. provided, and col. 5, lines 44-46). It would have been obvious to one of ordinary skill in the art at the time of the invention to include a sound wave detector as per the Ando teaching in the semiconductor manufacturing apparatus as per the Tsukazaki/Itaya teachings due to the capability of sound wave detectors to be mounted non-intrusively. It is noted that the sound detector of the Tsukazaki/Itaya/Ando apparatus is fully capable of being used to detecting a sound wave produced by vibration of the exhauster.

9. Claims 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukazaki (US 5,837,094) in view of JP 01293378 to Nashida (hereinafter "Nashida").

Tsukazaki does not explicitly teach a rotatable body for exhaust or a rotation detector. Nashida teaches an exhaust system (abstract) with an exhaust fan (Fig. 1, ref. 9 and abstract), or rotatable body, with a rotation detector (not shown, abstract), or operating state detector. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a rotatable body and rotation detector as per the Nashida teaching with the exhauster and operating state detector, respectively, of the semiconductor manufacturing apparatus as per the Tsukazaki teaching in order to protect the apparatus from heat damage.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. JP 11121430 to Yamamoto discloses a dryer exhaustion pipe with a sound collector. US 5,655,357 to Kristen discloses an exhaust sensor wherein a vibration member converts vibrational amplitude into an electric signal. US 6,579,371 to Gimmi, et al. discloses an exhaust flow control system with a vane anemometer.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Golightly whose telephone number is (571) 270-3715. The examiner can normally be reached on Monday to Thursday, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on (571) 272-1303. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EWG

/Michael Kornakov/  
Supervisory Patent Examiner, Art Unit 1792